REMARKS

Applicant has carefully considered the Office Action of August 25, 2005 and offers the following remarks in response thereto.

Before addressing the rejection, Applicant provides a brief summary of the present invention so that the remarks relating to the rejection are considered in the proper context. The present invention is designed to maximize throughput while guaranteeing a certain amount of fairness and meeting Quality of Service (QoS) requirements for users of a wireless network. Thus, the present invention has three factors that affect its scheduling of transmissions. The present invention determines a temporal fading factor based on channel conditions. This temporal fading factor is thus based on an average channel condition for each terminal. The present invention also determines a throughput fairness factor based on the throughput capability of each of the terminals. The present invention also determines a delay QoS factor based on delivery times. Based on these three factors, a weighting factor is calculated and the transmissions from various queued data are scheduled.

Claims 1-33 were rejected under 35 U.S.C. § 102(e) as being anticipated by Patel et al. (hereinafter "Patel"). Applicant respectfully traverses. For the Patent Office to prove anticipation, the Patent Office must show where each and every element of the claim is taught in the reference. Further, the elements of the reference must be arranged as claimed. MPEP § 2131.

Claim 1 recites a network interface. The Patent Office opines that this element is taught by Patel element 32 of Figure 2. Applicant respectfully traverses. Element 32 is a dynamic flow manager within a gateway 20. While the dynamic flow manager 32 may receive incoming packet streams, it does not interact directly with the network. As such, it is unreasonable to assert that element 32 is a network interface. While there may be a network interface within Patel (a point Applicant will not admit), element 32 is not a network interface. Thus, the Patent Office's construction of the reference does not show the claim element. Since the reference does not show the claim element, the claim is not anticipated.

Claim 1 further recites a wireless interface. The Patent Office asserts that this element is taught by Patel element 20 of Figure 1. Applicant respectfully traverses. Element 20 is a mobile gateway that communicates with the Internet 24 and the base stations 14. However, gateway 20 does not actually operate in any wireless manner. As such, it is unreasonable to assert that

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element 20 is a wireless interface. While there may be a wireless interface within Patel (a point Applicant will not admit), element 20 is not a wireless interface. Thus, the Patent Office's construction of the reference does not show the claim element. Since the reference does not show the claim element, the claim is not anticipated.

Claim 1 further recites determining a temporal fading factor based on current channel conditions relative to an average channel condition for each of the plurality of access terminals. The Patent Office asserts that this element is taught by Patel, col. 9, lines 26-40. Applicant respectfully traverses. Patel, col. 9, lines 26-40 states in full:

> In addition to available bandwidth information, the dynamic bandwidth estimator 34 may utilize information from the dynamic flow manager 32 such as the currently active set of virtual groups 36 and counts of flows in each of the virtual groups 36 to modify and/or optimize the queuing and forwarding resource allocations to the virtual groups 36. The dynamic flow manager 32 also notifies the dynamic bandwidth estimator 34 of dynamic regrouping of flows to enable the interference impact and the congestion parameters for each of the affected virtual groups 36 to be reassessed by the dynamic bandwidth estimator 34. As described in more detail below, the supply estimates are provided by the dynamic bandwidth estimator 34 to each of the virtual groups 36 to allow each virtual group 36 to control its own congestion.

While the passage mentions queues and congestion, there is no teaching within the passage that the congestion relates to a temporal fading factor and that this factor is based on an average channel condition, as recited in the claim. If the Patent Office disagrees, Applicant requests that the Patent Office identify with greater particularity which element within the passage is the temporal fading factor and how that element is based on an average channel condition. In the absence of such a particularized identification, the passage does not show the element for which it is cited. Since the reference does not show the claim element, the claim is not anticipated.

Claim 1 further recites determining a throughput fairness factor based on throughput capability of each of the plurality of access terminals. The Patent Office asserts that this element is taught by Patel, col. 10, lines 26-42. Applicant respectfully traverses. Patel, col. 10, lines 26-42 states in full:

> In order to maintain fairness among flows, packets are checked-out of the queues 74 in a first in first out (FIFO) order. Supply estimates are used to check out packets from the queues 74. Thus, where sufficient bandwidth is available to service the flows present and various class queues 74 in a virtual group 36, the packets 60 are serviced in the order in which they arrived. Similarly, packets output from the different virtual groups 36 are serviced in an order in which they

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arrive in order to maintain fairness among the groups 36. The available
forwarding resources for each virtual group are used to schedule departure
packets from the FIFO to assure fair utilization of bandwidth and to assure the
proper level of service for all end-stations as per their service level agreements
(SLA). Further information regarding the class of service queue 74 is described in
more detail below in connection with FIG. 12.

While the passage does indicate that fairness is considered, there is no indication that Patel's

system actually determines a fairness throughput factor based on the throughput capability for

each of the access terminals. Rather, fairness in Patel is achieved by servicing the queues in the

order in which they were received (see Patel, col. 10, lines 32-33). No fairness factor is ever

determined in the cited passage. If the Patent Office disagrees, Applicant requests that the Patent

Office identify with greater particularity which element within the passage is the fairness factor

and where it is determined based on the throughput capability for each of the access terminals.

In the absence of such identification, the reference does not teach the element. Since the

reference does not show the claim element, the claim is not anticipated.

Claim 1 further recites determining a delay Quality of Service (QoS) factor based on

delivery times associated with at least one unit for each of the plurality of access terminals. The

Patent Office asserts that this element is taught by Patel, col. 16, lines 1-8. Applicant

respectfully traverses. Patel, col. 16, lines 1-8 states in full:

> FIG. 11 illustrates details of the adaptive congestion controller 72 in
> accordance with one embodiment of the present invention. In this embodiment,
> the congestion controller 72 comprises a control parameter generator 180 and a
> queue manager 182 for each class of service queue 74 in a virtual group 36.
> Accordingly, congestion control treatments may be individually applied to each
> class of service within each virtual group 36.

While the passage applies congestion control techniques, there is nothing in the passage about a

delay QoS factor, as recited in the claim. If the Patent Office disagrees, Applicant requests that

the Patent Office identify with greater particularity which element within the passage is the

fairness factor and where it is determined based on the throughput capability for each of the

access terminals. In the absence of such identification, the reference does not teach the element.

Since the reference does not show the claim element, the claim is not anticipated.

Even if the Patent Office is able to identify where the temporal fading factor, throughput

fairness factor, and delay QoS factor are taught in Patel, claim 1 also recites calculating a

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weighting factor based on these three factors. The Patent Office asserts that this calculating is taught at Patel, col. 16, lines 39-61. Applicant respectfully traverses this assertion. Patel, col. 16, lines 39-61 states in full:

> The congestion over the air link is determined based on supply estimates received from the supply estimator. The queue length in terms of use space is measured and an average queue length is calculated using an expedientially weighted average of previous queue lengths.
>
> In a particular embodiment in which the adaptive congestion controller 72 implements a random early drop (RED) algorithm, the virtual group bandwidth estimator 166 may use a low-pass filter to establish exponential weighted moving averages for each class of service queue 74 in each virtual group 36. In this embodiment, the average computed bandwidth may be calculated as follows:
>
> $$A = (1-g) \times B + g \times b$$
>
> or
>
> $$A = B + g \times (b-B)$$
>
> where
> A is equal to the average computed bandwidth at time t;
> B is equal to the average computed bandwidth at time t-1;
> b is equal to the actual bandwidth available at t-1; and
> g is equal to the gain of the filter.

The Patent Office is correct that this passage has an equation, but this equation is not the calculation of a weighting factor, the calibration is the calculation of variable "A", which is defined as the average computed bandwidth at time t. Likewise, while the passage does mention weighted averages, this is the weighted average of queue lengths, not a weight to be applied to the queues to make scheduling decisions. As such, the cited passage does not teach or suggest the claim element. Since the passage does not teach the claim element, the reference does not anticipate claim 1.

In short, claim 1 has numerous elements that are not taught by Patel. Claims 2-11 depend from claim 1 and are not anticipated for at least the same reasons. Applicant requests withdrawal of the § 102(e) rejection of claims 1-11 on these bases.

Claim 12 recites, in relevant part, analogous elements to claim 1 (except for the two interfaces), but in method format. The Patent Office analyzes claim 12 with claim 1. For at least the same reasons set forth above with respect to claim 1, claim 12 is likewise not anticipated. Claims 13-22 depend from claim 11 and are not anticipated for at least the same reasons. Applicant requests withdrawal of the § 102(e) rejection of claims 12-22 on these bases.

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Claim 23, like claim 12, recites essentially the same elements as claim 1 (except for the two interfaces), but in a software format. The Patent Office analyzes claim 23 with claim 1. For at least the same reasons set forth above with respect to claim 1, claim 23 is likewise not anticipated. Claims 24-33 depend from claim 23 and are not anticipated for at least the same reasons. Applicant requests withdrawal of the § 102(e) rejection of claims 23-33 on these bases.

Applicant requests reconsideration of the rejection in light of the remarks presented herein. Applicant earnestly solicits claim allowance at the Examiner's earliest convenience.

Respectfully submitted,

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